

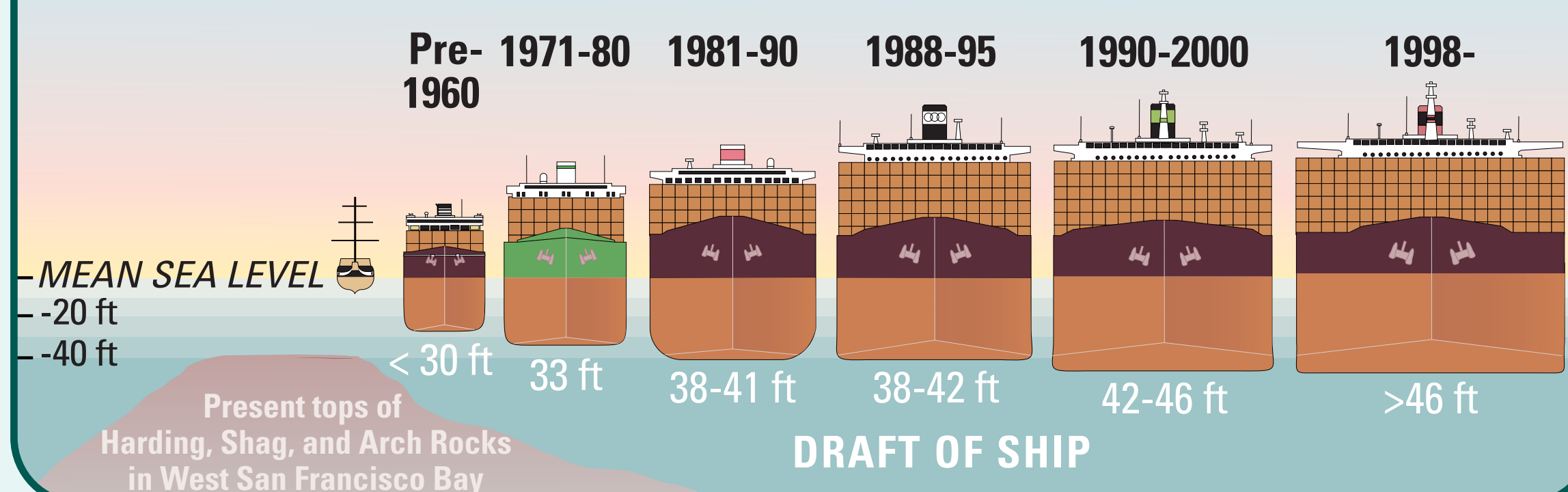
# Mapping Shipping Hazards in San Francisco Bay

## 1997-1998

The USGS mapped western San Francisco Bay using sonar, in cooperation with the National Oceanic and Atmospheric Administration (NOAA) and C&C Technologies.

Some parts of the Bay floor are so shallow that a large tanker or container ship could run aground at low tide and create a massive oil spill.

### EVOLUTION OF CONTAINER SHIPS



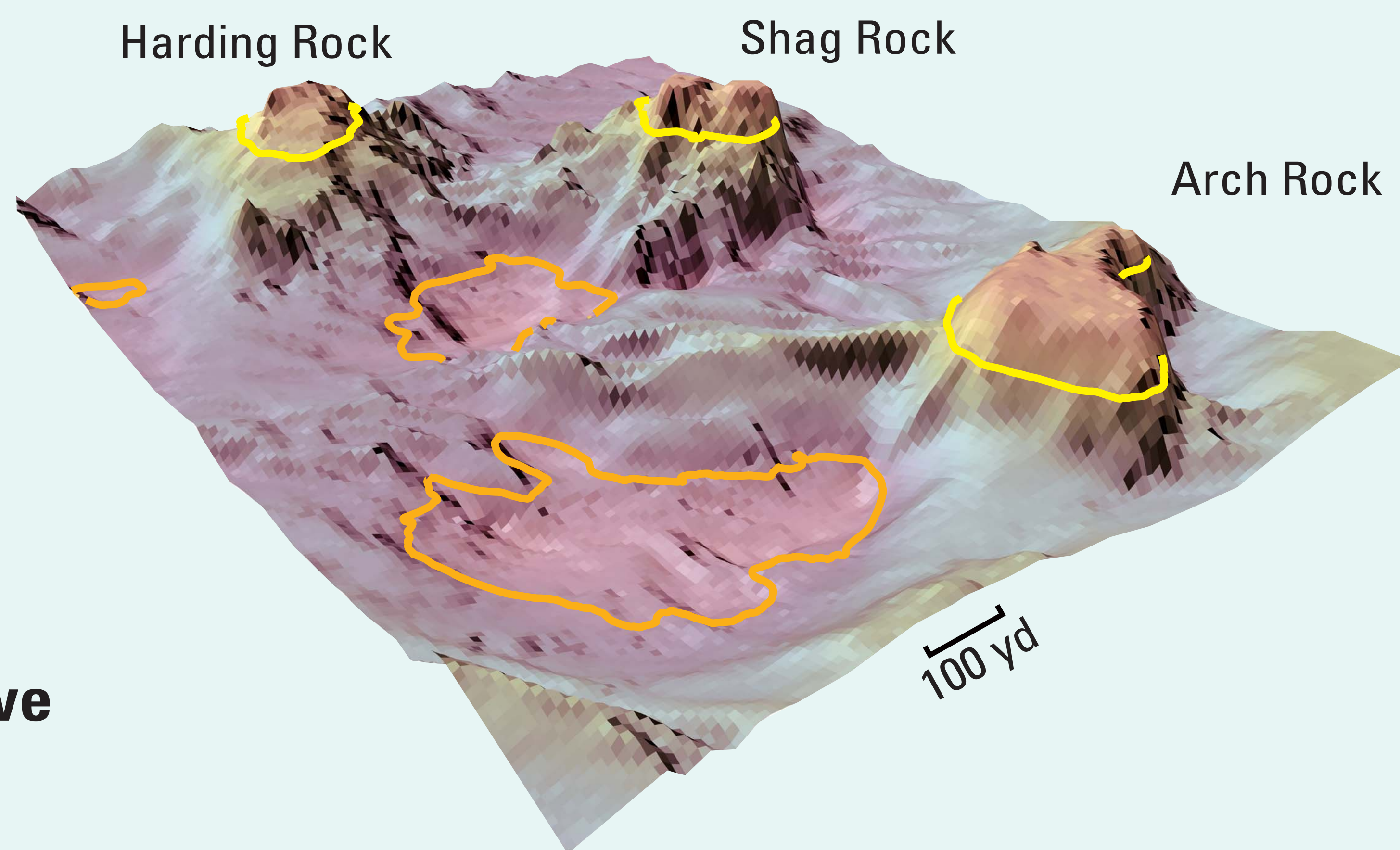
The maps show how the rock pinnacles could be lowered and the material deposited in holes in the Bay floor. Ships could navigate freely in the Bay, even at low tide, without having to avoid these areas.

The maps will be used to help determine the environmental, economic, and social impact of lowering the rock pinnacles.



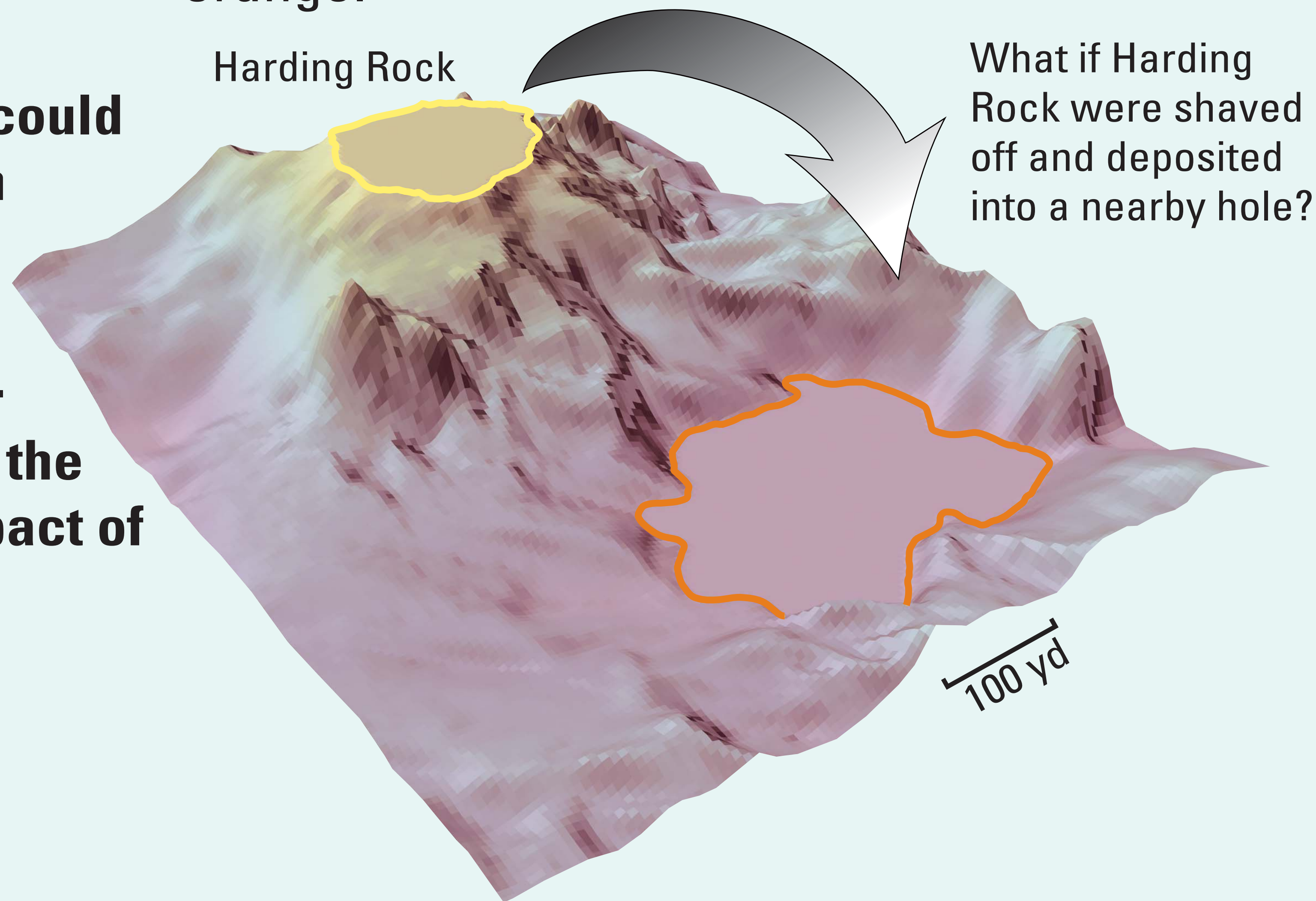
Location of San Francisco Bay

More information on the web: <http://walrus.wr.usgs.gov/posters>



### Computer images of western San Francisco Bay without water.

- Rocks less than 55 feet below sea level are outlined in yellow.
- Holes deeper than 95 feet are outlined in orange.



### San Francisco Bay Mapping Team

John Chin, USGS  
Paul Carlson, USGS  
Florence Wong, USGS  
David Cacchione, USGS  
Dave Rubin, USGS  
Pat Chavez, USGS  
Miguel Velasco, USGS  
Jim Gardner, USGS  
Pete Dartnell, USGS



Photo of sonar equipment mounted to survey boat